

Application No. 10/735,510
Supplemental Amendment

Customer No. 01933

Listing of Claims:

1. (Currently Amended) A performance evaluation apparatus comprising:

a reference-performance data supplying unit for successively supplying reference-performance data designating a pitch of a musical sound for generating a sound, a time at which a sound of the musical sound should be generated and a time at which the sound of the musical sound should be terminated;

an actual-performance data supplying unit for successively supplying actual-performance data including a time of instructing actual generation of a sound of a musical sound at the designated pitch and a time of instructing actual termination of the sound of the musical sound;

a reference on-period extracting unit for extracting a reference on-period indicative of a period between the time at which the sound of the musical sound should be generated and the time at which the sound of the musical sound should be terminated, based on the reference-performance data supplied from the reference-performance data supplying unit;

a real on-period extracting unit for extracting a real on-period indicative of a period between the time of instructing actual generation of the sound of the musical sound and the time of instructing actual termination of the sound of the musical

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sound, based on the actual-performance data supplied from the actual-performance data supplying unit;

25 a judging unit for judging whether or not the reference on-period extracted by the reference on-period extracting unit and the real on-period extracted by the real on-period extracting unit overlap with each other;

30 a comparing unit for comparing the pitch of the sound generated in the reference on-period extracted by the reference on-period extracting unit and the pitch of the sound generated in the real on-period extracted by the real on-period extracting unit, only when the judging unit determines that the reference on-period and the real on-period overlap with each other; and

35 an evaluation score calculating unit for ~~adding an evaluation point to adjusting~~ an evaluation score when in accordance with whether or not the comparing unit determines that both the pitches are the same, ~~and for subtracting the evaluation point from the evaluation score when the comparing unit determines that both the pitches are not the same.~~

2. (Previously Presented) The performance evaluation apparatus according to claim 1, wherein the reference-performance data supplying unit comprises:

5 a performance-data memory for storing a series of data including on-event data instructing initiation of sound

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generation of the musical sound at the designated pitch, off-event data for instructing termination of the sound of the musical sound, and a time period between the on-event and the off-event; and

10 a reading out unit for reading out and supplying event data corresponding to the time period from the performance-data memory.

3. (Currently Amended) A performance evaluation program for causing a computer controlled performance evaluation apparatus to execute a procedure comprising:

successively supplying reference-performance data
5 designating a pitch of a musical sound for generating a sound, a time at which a sound of the musical sound should be generated and a time at which the sound of the musical sound should be terminated;

successively supplying actual-performance data including a
10 time of instructing actual generation of a sound of a musical sound at the designated pitch and a time of instructing actual termination of the sound of the musical sound;

extracting a reference on-period indicative of a period
between the time at which the sound of the musical sound should
15 be generated and the time at which the sound of the musical sound

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should be terminated, based on the supplied reference-performance data;

20 extracting a real on-period indicative of a time period between the time of instructing actual generation of the sound of the musical sound and the time of instructing actual termination of the sound of the musical sound, based on the supplied actual-performance data;

judging whether or not the extracted reference on-period and the extracted real on-period overlap with each other;

25 comparing the pitch of the sound generated in the real on-period with the pitch of the sound generated in the reference on-period, only when it is determined that the reference on-period and the real on-period overlap with each other; and

30 ~~adding an evaluation point to adjusting an evaluation score when in accordance with whether or not it is determined that both the pitches are the same, and subtracting the evaluation point from the evaluation score when it is determined that both the pitches are not the same.~~

Claims 4-16 (Canceled).

17. (Currently Amended) A performance evaluation apparatus comprising:

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a performance designating unit for designating a pitch of a sound-generation event contained in music data and a sound-generation period between a time of initiating sound generation and a time of terminating the sound generation;

5 a performance detecting unit for detecting a pitch of a performed musical sound and a time of initiating performance of the musical sound;

10 a pitch judging unit for judging whether or not the pitch of the performed musical sound detected by the performance detecting unit coincides with the pitch of the sound-generation event designated by the performance designating unit;

15 a timing judging unit for determining that there is a coincidence in timing when one of: (i) the performance detecting unit detects the time of initiating performance within the sound-generation period designated by the performance designating unit, and (ii) the performance designating unit designates the time of initiating sound generation within a predetermined time

20 period after the time of initiating performance detected by the performance detecting unit, and for determining that there is no coincidence in timing when one of: (i) the performance detecting unit does not detect the time of initiating performance within the sound-generation period, and (ii) the performance designating unit does not designate the time of initiating sound generation

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within the predetermined time period after the time of initiating performance detected by the performance detecting unit; and

a performance evaluation unit for adding an evaluation point to the adjusting an evaluation score when in accordance with

30 whether or not the time judging unit determines that there is a coincidence in timing, and in accordance with whether or not the pitch judging unit determines that the pitch of the performed musical sound detected by the performance detecting unit

coincides with the pitch of the sound-generation event designated

35 by the performance designating unit, and when the timing judging unit determines that there is a coincidence in timing, and for subtracting the evaluation point from the evaluation score when the pitch judging unit determines that the pitch of the performed musical sound detected by the performance detecting unit does not

40 coincide with the pitch of the sound generation event designated by the performance designating unit or when the timing judging unit determines that there is no coincidence in timing.

18. (Previously Presented) The performance evaluation apparatus according to claim 17, wherein the timing judging unit judges whether or not there is a coincidence in timing for each pitch designated by the performance designating unit when the 5 performance designating unit designates plural pitches of sound-generation events and plural sound-generation periods.

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19. (Previously Presented) The performance evaluation apparatus according to claim 17, further comprising:

10 a time setting unit responsive to a setting operation for setting a time period, and

wherein the timing judging unit determines that there is a coincidence in timing when the performance designating unit designates the time of initiating sound generation within the time period set by the time setting unit.

20. (Currently Amended) A performance evaluation program for causing a computer controlled performance evaluation apparatus to execute a procedure which comprises:

5 designating a pitch of a sound-generation event contained in music data and a sound-generation period between a time of initiating sound generation and a time of terminating the sound generation;

detecting a pitch of a performed musical sound and a time of initiating the performance;

10 judging whether or not the pitch of the detected musical sound coincides with the designated pitch of the sound-generation event;

determining that there is a coincidence in timing when one of: (i) the time of initiating the performance is detected within 15 the designated sound-generation period, and (ii) the time of

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initiating sound generation is designated within a predetermined time period after the time of initiating performance is detected, and determining that there is no coincidence in timing when one of: (i) the time of initiating the performance is not detected within the designated sound-generation period, and (ii) the time of initiating sound generation is not designated within the predetermined time period after the time of initiating performance is detected; and

20 ~~adding an evaluation point to the adjusting an evaluation score when in accordance with whether or not it is determined that there is a coincidence in timing, and in accordance with whether or not it is determined that the detected pitch of the performed musical sound coincides with the designated pitch of the sound-generation event, and when it is determined that there is a coincidence in timing, and subtracting the evaluation point from the evaluation score when it is determined that the detected pitch of the performed musical sound does not coincide with the designated pitch of the sound-generation event or when it is determined that there is no coincidence in timing.~~

25 ~~adding an evaluation point to the adjusting an evaluation score when in accordance with whether or not it is determined that there is a coincidence in timing, and in accordance with whether or not it is determined that the detected pitch of the performed musical sound coincides with the designated pitch of the sound-generation event, and when it is determined that there is a coincidence in timing, and subtracting the evaluation point from the evaluation score when it is determined that the detected pitch of the performed musical sound does not coincide with the designated pitch of the sound-generation event or when it is determined that there is no coincidence in timing.~~

30 ~~adding an evaluation point to the adjusting an evaluation score when in accordance with whether or not it is determined that there is a coincidence in timing, and in accordance with whether or not it is determined that the detected pitch of the performed musical sound coincides with the designated pitch of the sound-generation event, and when it is determined that there is a coincidence in timing, and subtracting the evaluation point from the evaluation score when it is determined that the detected pitch of the performed musical sound does not coincide with the designated pitch of the sound-generation event or when it is determined that there is no coincidence in timing.~~

21. (Previously Presented) A performance evaluation apparatus comprising:

a reference-performance data supplying unit for successively supplying reference-performance data designating a pitch of a

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- 5 musical sound for generating a sound, a time at which a sound of the musical sound should be generated and a time at which the sound of the musical sound should be terminated;
- an actual-performance data supplying unit for successively supplying actual-performance data including a time of instructing 10 actual generation of a sound of a musical sound at the designated pitch and a time of instructing actual termination of the sound of the musical sound;
- a period setting unit for setting an evaluation period in accordance with contents of the reference-performance data;
- 15 a performance data comparing unit for comparing the reference-performance data supplied by the reference-performance data supplying unit and the actual-performance data supplied by the actual-performance data supplying unit within the evaluation period set by the period setting unit;
- 20 a performance evaluation unit for evaluating a comparison result output by the performance data comparison unit; and an evaluation outputting unit for displaying an evaluation result output by the performance evaluation unit on a display device.

22. (Currently Amended) The performance evaluation apparatus according to claim 21, wherein the performance data comparing unit comprises:

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a reference on-period extracting unit for extracting a
5 reference on-period indicative of a period between the time at
which the sound of the musical sound should be generated and the
time at which the sound of the musical sound should be
terminated, based on the reference-performance data supplied from
the reference-performance data supplying unit;

10 a real on-period extracting unit for extracting a real
on-period indicative of a period between the time of instructing
actual generation of the sound of the musical sound and the time
of instructing actual termination of the sound of the musical
sound, based on the actual-performance data supplied from the
15 actual-performance data supplying unit;

a judging unit for judging whether or not the reference
on-period extracted by the reference on-period extracting unit
and the real on-period extracted by the real on-period extracting
unit overlap with each other; and

20 a comparing unit for comparing the pitch of the sound
generated in the reference on-period extracted by the reference
on-period extracting unit and the pitch of the sound generated in
the real on-period extracted by the real on-period extracting
unit, only when the judging unit determines that the reference
25 on-period and the real on-period overlap with each other; and

wherein the performance evaluation unit adds an evaluation
point to adjusts an evaluation score when in accordance with

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whether or not the comparing unit determines that both the pitches are the same, and subtracts the evaluation point from the evaluation score when the comparing unit determines that both the pitches are not the same.

23. (Previously Presented) The performance evaluation apparatus according to claim 21, wherein the period setting unit sets the evaluation period in accordance with a number of musical sounds contained in the reference-performance data.

24. (Previously Presented) The performance evaluation apparatus according to claim 21, wherein the period setting unit sets the evaluation period in accordance with a lapse of a predetermined time period.

25. (Previously Presented) The performance evaluation apparatus according to claim 21, wherein the period setting unit sets the evaluation period based on identification data contained in the reference-performance data.

26. (Previously Presented) The performance evaluation apparatus according to claim 21, wherein the period setting unit sets the evaluation period in accordance with a length of

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on-period of musical sound contained in the reference-performance data.

27. (Previously Presented) The performance evaluation apparatus according to claim 21, wherein the period setting unit sets the evaluation period in accordance with a tempo of the reference-performance data.

28. (Previously Presented) The performance evaluation apparatus according to claim 21, wherein the apparatus further comprises:

an evaluation storing unit for storing the evaluation result with respect to a previous predetermined period evaluated by the performance evaluation unit; and

a judging unit for judging whether a current evaluation result output by the performance evaluation unit is better, the same as or worse than the previous evaluation stored in the evaluation storing unit, and for providing the judging result to the evaluation outputting unit.

29. (Previously Presented) A performance evaluation program for causing a computer controlled performance evaluation apparatus to execute a procedure which comprises:

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successively supplying reference-performance data
5 designating a pitch of a musical sound for generating a sound, a time at which a sound of the musical sound should be generated and a time at which the sound of the musical sound should be terminated;

successively supplying actual-performance data including a
10 time of instructing actual generation of a sound of a musical sound at the designated pitch and a time of instructing actual termination of the sound of the musical sound;

setting an evaluation period in accordance with contents of the reference-performance data;

15 comparing the reference-performance data and the actual-performance data within the set evaluation period;

evaluating a result of the comparison; and

displaying a result of the evaluation on a display device.

30. (New) The performance evaluation apparatus according to claim 1, wherein the evaluation score calculating unit at least one of: (i) adds an evaluation point to the evaluation score when the comparing unit determines that both the pitches are the same, 5 and (ii) subtracts the evaluation point from the evaluation score when the comparing unit determines that both the pitches are not the same.

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31. (New) The performance evaluation program according to claim 3, wherein the evaluation score is adjusted by at least one of: (i) adding an evaluation point to the evaluation score when it is determined that both the pitches are the same, and
5 (ii) subtracting the evaluation point from the evaluation score when it is determined that both the pitches are not the same.

32. (New) The performance evaluation apparatus according to claim 17, wherein the performance evaluation unit at least one of: (i) adds an evaluation point to the evaluation score when the pitch judging unit determines that the pitch of the performed musical sound detected by the performance detecting unit coincides with the pitch of the sound-generation event designated by the performance designating unit and when the timing judging unit determines that there is a coincidence in timing, and
5 (ii) subtracts the evaluation point from the evaluation score when the pitch judging unit determines that the pitch of the performed musical sound detected by the performance detecting unit does not coincide with the pitch of the sound-generation event designated by the performance designating unit or when the timing judging unit determines that there is no coincidence in
10 timing.
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33. (New) The performance evaluation program according to
claim 20, wherein the evaluation score is adjusted by at least
one of: (i) adding an evaluation point to the evaluation score
when it is determined that the detected pitch of the performed
5 musical sound coincides with the designated pitch of the
sound-generation event and when it is determined that there is a
coincidence in timing, and (ii) subtracting the evaluation point
from the evaluation score when it is determined that the detected
pitch of the performed musical sound does not coincide with the
10 designated pitch of the sound-generation event or when it is
determined that there is no coincidence in timing.

34. (New) The performance evaluation apparatus according to
claim 22, wherein the performance evaluation unit at least one
of: (i) adds an evaluation point to the evaluation score when the
comparing unit determines that both the pitches are the same, and
5 (ii) subtracts the evaluation point from the evaluation score
when the comparing unit determines that both the pitches are not
the same.